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The Plymouth Meeting.

The seventeenth annual meeting of the National Veterinary Association was held on Wednesday and Thursday at Plymouth.

It is not for us to institute any comparisons but we may confess that never before has a meeting closed with more general expressions of perfect satisfaction. The subjects were of primary importance, the papers were good, and the discussions well sustained. A full two days' programme was carried out and no sign of weariness was evident. A novelty was the microscopic demonstration given by Professor Mettam, who brought from Edinburgh fifty microscopes and a splendid collection of histological sections. Another interesting incident was a demonstration of öophorectomy, or ovariotomy performed by Professor Hobday on a cow. This is a revival of an operation that has fallen into desuetude, and though the modern method differs from the old one, being practiced through the vagina instead of through the flank, it remains to be seen whether it is of practical value. If half what is claimed for it results the operation has a future.

On Wednesday morning the Mayor of Plymouth—Alderman Pethick—welcomed the Association at the Guildhall in no terms of conventionality, but in a direct, downright style of earnest conviction that went straight to the hearts of the assembled veterinary surgeons. The Mayor is a horseman, and has a son who practices our profession at Tiverton—perhaps this accounted for his knowledge of our ways and his appreciation of our endeavours. The rest of the day was devoted to "Bovine Tuberculosis" and "Spavin." If nothing new was elicited, at any rate some correction of error resulted, and a demonstration of general unanimity was forthcoming on both questions. It seemed generally agreed that spavin is not so bad as it has been represented, whilst tuberculosis was branded as a deadly enemy, against which unity of action is essential.

In the evening the Mayor gave a reception in the Guildhall to the Association and its friends. This was a marked success and all our members will leave Plymouth with a vivid recollection of the musical treat given them and of the Mayor's hospitality. Ladies graced the reception in a conspicuous manner and gave a charm to the proceedings which makes us regret their absence at most veterinary assemblies. An old classical friend used to say that "one hour in the company of cultivated women was worth two hours with Tacitus." We regret that this *obiter dictum* is not more often experimentally tested at veterinary meetings—we believe it only wants a few trials to be demonstrated.

The second day was devoted to "Milk Fever" and "Oöphorectomy." No flagging interest was shown, and a general idea prevailed that Mr. Harvey's paper marked a new era in our knowledge of this disease. Certainly the paper is the high water mark of our literature on the subject.

On Friday the excursion provided by the Western Counties V.M.A. will be held. The weather is glorious and we anticipate a crowning success to our meeting.

Next year it is settled that the Association shall meet in Dublin and then—Plymouth is to be eclipsed.

Necrosis of the Hyoid Bone.—By MM. Cuille and Sendrail.

In a young horse attacked with strangles an abscess formed and pointed in the submaxillary space in the usual manner. This was punctured, but a fistula remained although it was treated with various astringents and escharotics, and at last by the actual cautery.

The patient then came under the care of the authors, who on examination by probing discovered that the hyoid bone was necrosed, and that there were one or more hard moveable sequestra at the bottom of the fistula. An operation was performed, and two sequestra formed from the body of the bone were successfully removed. The case appeared to be doing well, but two days afterwards died from gangrenous pneumonia brought about by false deglutition and food passing down the trachea.

The body of the bone was enlarged and thickened, and contained three cavities that communicated with each other and the fistula. Two of these were empty, but had evidently contained the sequestra removed in the operation, the third contained two small sequestra the size of a pea.

There appears to be a dearth of cases of necrosis of the hyoid bone in veterinary literature. It is mentioned by Lafosse in 1772, and Goubaux at the Central Veterinary Medical Society of France in 1887, but the only detailed account the author can discover is by M. Rigot in *The Recueil de Médecine Vétérinaire* of 1840, p. 556.

Translated from *Recueil de Médecine Vétérinaire*, 15th July, 1899.

Joshua A. Nunn, A.V.D.

Note by Translator.—I have only once come across a case of necrosis of the hyoid bone, in an Arab polo pony in India. The necrosed portion was removed, and the patient recovered, but became a bad roarer—a rare disease in Arabs. MM. Cuille and Sendrail's case appears to have been affected with paralysis of the larynx, and it would be interesting to know if this always or generally supervenes, also if it is due to the disease of the bone or to operative interference. I am inclined to think the latter. I would esteem it a favour if any of your readers who have seen such cases would give their experience and opinions through the medium of your pages, also references of any reported cases they may know of. The case that came under my observation was reported in *The Veterinary Journal* at the end of 1895.

J. A. N.

CANINE INFLUENZA—ITS SYMPTOMS AND TREATMENT.

By H. KARSLAKE TASKER, M.R.C.V.S., Bexhill-on-Sea.

The various articles headed Canine influenza, New disease in dogs, Gastro-enteritis, etc., which have appeared in the pages of *The Veterinary Record* of late are, I am sure, most interesting, especially to veterinary surgeons, who, like myself, have made a speciality of canine surgery and pathology. It strikes me very forcibly that there exists amongst members of our profession great diversity of opinion as to what this new disease amongst dogs really is. Although I do not claim to be an old practitioner nor wish in any way to preach, or try to teach my elders, I nevertheless venture to hope that a few remarks on this new disorder affecting dogs, based only upon continued hard work, and observations made upon cases under my care, may not be considered out of place, and may even be worthy of the attention of the readers of *The Record*.

To study this disease properly I have considered it expedient in some cases to sit up with dogs all night to notice the symptoms from the commencement of the disease to its finish.

My experience up to the present date leads me to pronounce at once that this new disease in dogs is nothing more or less than "influenza" in its various forms and complications. Let me therefore give my reasons for this statement.

As far as I am aware influenza is liable to attack any animal. It seems even communicable from man to animals, but not so communicable from animals to man.

Whilst in Edinburgh as a student I turned my attention to studying the diseases both in man and animals. I have noticed in houses in which the inhabitants were suffering from or recovering from influenza that an animal, such as the dog or cat, and in some cases even the tame canary, would invariably take the disease last. Again, when a dog is brought to me showing marked signs of influenza in one of its forms, on enquiry I generally elicit the fact that someone in the house from which it comes has influenza, or is recovering from it. This leads me to theorise that the period of incubation of the disease in dogs is longer than that in the human being. It gives room for the theory that influenza may be caused by the entrance of a micro-organism into the system. Besides being infectious from man to dogs the disease is also infectious or contagious from dog to dog. I will now give a brief review of the disease and its treatment.

Canine influenza might be defined as an epizootic febrile disease, subject to various forms and complications, with in most cases marked prostration of strength, accompanied by inflammation of the nasal and conjunctival mucous membranes, often accompanied by inflammation of the the mucous membranes of the alimentary canal, and other mucous membranes.

I have divided the disease into six different forms so as to describe the symptoms more accurately, viz., 1 catarrhal, 2 thoracic, 3 gastric, 4 gastro-enteric, (or abdominal forms) 5 paralytic, 6 transitory.

The first symptoms I have noticed previous to all the forms of canine influenza is that the animal's nose becomes dry and is hot to the touch. After two or three days the animal is usually affected with a peculiar cough. It is a loud prolonged, snorting cough, something between a sneeze and cough, in fact it sounds as if the animal was trying to cough and sneeze up a discharge from the nostrils and mouth at one and the same time, but there is at this stage *no discharge*; it is not an incessant cough and may only occur from two to five times a day, but more especially in the evening, the animal otherwise appearing in the best of health. To this I give the name of the catarrhal form as it so resembles an ordinary cold, and is apt to be overlooked; now is the time to use a preventive treatment.

Next may be noticed a weakness of the eyes and a flow of tears down the cheek or most often extra moisture at the inner canthus of the eyes. Then a clear discharge from the nostrils. After a few days the discharge from the eyes becomes whitish in colour and that from the nostrils also, the latter sticking round the openings of the nasal chambers. The dog at this stage suddenly refuses all food and has little strength to move, only being able to walk a few yards and then fall down exhausted; here we have the "thoracic form," because in this stage we usually can detect inflammation of the larger bronchial tubes. These symptoms up to this stage of prostration take from seven to fourteen days to develop after the cough is first noticed, but the period is variable. On opening the mouth the mucous membranes are hot and red, as also are the conjunctivæ. The breathing is laboured and a low exhausting fever present, the animal often making attempts to cough away the discharge. We will say for example that we are attending a dog at this stage of the disease *the stage of prostration*. The animal will usually show aggravation of the symptoms at from 12.30 a.m. to 2.30 a.m., therefore it is an important matter to stop up with the animal the first night at least, and keep on with *constant feeding* and stimulants. If the case progresses favourably a slight improvement will be found on the second day; there will also be more discharge from the eyes and nose. About the third or fourth day the discharge will become yellowish in colour; about the 6th day it will absolutely run from the nose, and then it again becomes whitish in colour, but very little in amount, and stops altogether on the 8th, 9th, or tenth day. When this occurs the cough either altogether stops or alters its character to an ordinary cough. The discharge from the eyes gets more abundant as the discharge from the nose gets less, it keeps on for about a day or two after that from the nose stops, and it then stops suddenly. During this time the animal under treatment gradually picks up its strength, and can be exercised after the 4th day, the appetite becomes better on the 4th or 5th day, but of course the patient is not out of danger for a week, as the least chill is apt to prove fatal. As a rule the animal recovers in fourteen days after the stage of prostration first commences, but is left in a weak state for a week or two, having lost weight considerably during the progress of the disease. These two forms appear to me easy to bring to a successful termination if the animal is carefully treated, provided he does not die during the first three days which seems the most uncertain time.

The gastric form occurs after the cough has been noticed for about two weeks. The animal is suddenly attacked with violent vomiting and loses condition rapidly (owing to the inability of the stomach to retain food) bringing up at each vomit a lot of white or yellowish frothy matter. In this form there may be no discharge from the eyes or nose. The latter organs being very hot. The animal lies about as a rule in cool places. This gastric form, if neglected, will in all probability lead on to the much discussed gastro-enteric form of influenza, although in many cases the gastro-enteric form does not follow the gastric but appears as a separate form of disease. A dog may be noticed to be unwell one day, vomiting occasionally; next day he is a good deal worse, the vomit being streaked or coloured with a darkish brown material, or streaked with blood; on the third day the dog usually dies. During this diarrhœa is often a symptom, this being stained with the same material or with blood. The post-mortem appearances in the gastro-enteric form of influenza are peculiar. The stomach *in situ* has the appearance of a chocolate coloured tumour; the peritoneal coat of the bowels may be inflamed throughout, inflamed in patches,

or not show any sign of inflammation. On cutting open the bowels the entire length of the mucous coat is usually inflamed, and the bowels contain a gelatinous material chocolate, dark red, or pink in colour. This may be of a uniform colour throughout the length of the bowels, or a patch of one colour and then another.

The stomach when opened shows that the inflammation has extended through all its coats ; it contains this chocolate coloured gelatinous material, but it is darker than in the bowels. It would appear that the mucous coat of stomach and intestines undergoes a catarrhal inflammation succeeded by a gelatinous degeneration. I cannot at all understand why this form of influenza should be looked upon as a "new disease." I am informed by doctors that influenza in their patients is now taking the gastro-enteric form, and why it should not also attack the dog in the same way I cannot comprehend. It is certainly a very fatal form of the disease if not taken in good time.

The paralytic form, by which I mean that state when combined with any of the other forms of the disease paralysis sets in of both hind legs, and any attempt to hold up the animal results in the hind legs falling under him or falling to the side. When this paralysis sets in the case is usually hopeless.

I have named my last form of influenza, the transitory form. In this the symptoms are very slight, and resemble on a minor scale any of the forms of influenza alluded to. They may pass off in a few days with careful treatment.

I do not wish in any way to boast of my professional abilities, or medicines etc. prepared or sold by me, but most of the cases of influenza that have been put under my care have recovered. If any animal survives when he is at first in a condition of great prostration for three or four days a recovery may be looked for with every hope, and certainly if the dog continually improves for a week recovery is the rule not the exception. I have had two cases linger on for from five to six weeks and then die, but I traced these to the non-attendance of my rule of feeding and medicinal treatment at the commencement, consequently the animals were attacked with complications and died ; being myself unwell at the time I had to trust to others to do the work, with this result.

Treatment: *Catarrhal and Transitory Forms.*

Directly the dog shows signs of the peculiar cough mention, I dose him two or three times a day with a special influenza pill (made to my prescription by Messrs. Willows, Francis and Butler, 40 Aldersgate Street) until the cough ceases. These pills, if given in time, appear to me to ward off attacks of influenza, my own dog being quite free from it, although he is frequently about with those affected with it ; I dosed him for five days directly he commenced the cough, and now give him the pills occasionally.

I give the manufacturers full leave to supply these pills to members of the profession for trial, and can only hope that they may find their use as beneficial in the treatment of the disease as I have. I do not feel obliged in anyway to write out the prescription at present, but simply to state that the combination of the ingredients of the pills has been thought out with hints from a medical friend.

Thoracic form.—When a dog is brought to me with symptoms such as I have described under this head in a state of absolute prostration I commence with him at once as follows. First give a sniff of amyl nitras then bathe the discharge well away from the nostrils, insert an eyelid retractor and clean out all the discharge from between the lower eyelids and eyes where it will be found to have partially coagulated in a long mass, using a mixture for this purpose of two ounces Hamamelis Virginica and six ounces of warm water. Injecting up each nostril some Hamamelis Virginica dist. pure (Burrows and Wellcome), next I give one drachm of ammoniated tincture of quinine and one drachm of brandy in 1½ ounces of cold milk, place the dog in a comfortable position and leave him quiet for half an hour, then give one egg beaten up in half a pint of milk (or Kreochyle), this treatment I repeat every two or three hours for the first day and greater part of the night, but not always giving the quinine, using about ℥ii. altogether the first day. By the next morning the animal, unless it is a hopeless case, shows signs of improvement. I continue the ammoniated tr. quinine and brandy, giving three doses on the second day, taking great care always to keep the eyes and nose as clear of discharge as possible. On the third day if the animal is much improved and can walk about a little, I then change over to the pills before mentioned. Fourth day continue pills ; fifth day if animal goes on improving alternate the pills with the following :

℞	Quinine sulph.	gr. I.
	Ferri. sulph.	gr. I.
	Ext. Gentian	gr. II.
	Quassiæ pulv.	gr. IV.
	Gacckient ad q.s.	ft. pil I.

I look upon continual feeding with nutritious materials as of the greatest importance ; this I do every two hours when the animal is very much prostrated, with milk and eggs or Kreochyle and keeping with this until the dog shews inclination to eat a little of its own accord, which is usually in bad cases about the 5th or 6th day. (Not to cause the animal uneasiness during administration of medicines, etc., I have used for two years or more a special dog-drenching syringe, made to my order by Messrs. Krohne & Sesemann, 8 Duke Street, Manchester Square, upon which all the graduations for doses are made, whereby I can administer to a dog without help a pint of milk and eggs at a time, or give any dose of medicine ; the syringe holds 1½ ounces and is made so that all parts can be cleaned directly after use.) With commencement of return of appetite the discharge from eyes and nose gradually abates, after the 5th day, and if the dog commences to eat, I give meat chopped up very fine, also biscuits, and supplement the feeding by giving bovril, beef tea, extract of meat, etc., at the same time leaving off the influenza pills and giving the tonics only as the symptoms abate. If any complications set in I treat accordingly.

When the discharge from eyes and nose stops, and the animal is getting on well but remains weak, I give Macadam's cod liver oil and malt extract, and feed on Macadam's Malt Extract Dog Biscuits, meat, etc., until strength is restored.

In the gastric and gastro-enteric form I find the following mixture is excellent, together with local treatment fomentations, etc. :

℞	Liq. Calcis Iodinatæ	℥v.
	Vinum Ipecac.	℥v.
	Aqua ad.	℥ii.

One dose every two or three hours, regulating all doses according to the size of the patient. The bowels I endeavour to work upon by enemas if costive, and chlorodyne if the reverse. In addition to this constant feeding is required. In bad cases the only food that a dog seems to retain and digest is a preparation known as "Kreochyle," this is a most concentrated form of nourishment containing all the albumen of meat in solution and can be digested without the aid of the digestive organs. Thus we can obtain for our patients rest of the inflamed parts. It is prepared by the Kreochyle Co., Viaduct House, Farringdon Street, E.C. I give from one to two teaspoonfuls every one two, or three hours. It has also the advantage that the doses are small and nourishment of the maximum in each dose. When I consider the animal well enough I then go on with the treatment as for the thoracic form. I hope, therefore, that the treat-

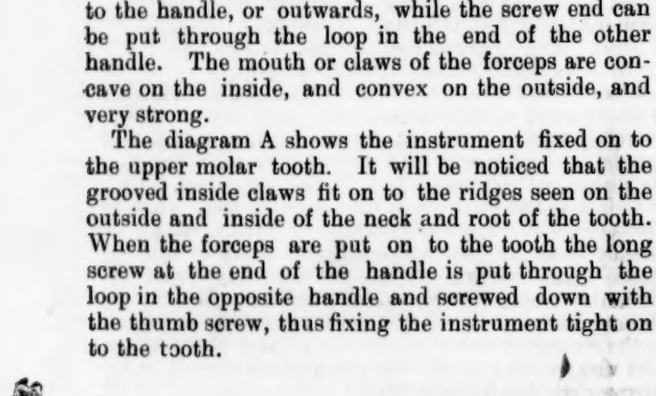
ment I have set forth may give to others the success that it has to me in the cure in canine influenza.

In conclusion, I apologise for any errors that may occur in this article in the description of the disease, etc. I have litte time at my disposal to write, or I should have sent this article several weeks earlier.

TOOTH INSTRUMENTS.

I herewith send you sketches of my molar tooth forceps. Some twelve years ago I had the instrument made by a good practical agricultural implement maker of this town, but now made by Mr. Huish, 8 Fisher Street, Red Lion Square, London, W.C. It will be seen that the instrument has a single-jointed screw at the extreme end of one of the handles, so that the screw can be turned inwards on to the handle, or outwards, while the screw end can be put through the loop in the end of the other handle. The mouth or claws of the forceps are concave on the inside, and convex on the outside, and very strong.

The diagram A shows the instrument fixed on to the upper molar tooth. It will be noticed that the grooved inside claws fit on to the ridges seen on the outside and inside of the neck and root of the tooth. When the forceps are put on to the tooth the long screw at the end of the handle is put through the loop in the opposite handle and screwed down with the thumb screw, thus fixing the instrument tight on to the tooth.



Section B shows the concave or grooved claws of the forceps.

In extracting a molar, I always cast the horse, and by the aid of the mouth gag fix the forceps on to the tooth to be extracted, and screw tight as shown by diagram A. After fixing the instrument I take hold of each handle and slightly twist the forceps from side to side, two or three times, thus loosening the tooth in the socket; an assistant then places a piece of hard wood, about two feet long, and 1½ inches square, across the mouth, the wood resting on the molars on both sides of the jaw and in front of the forceps; the handles of the instrument are then pressed firmly down across the wood which acts as a fulcrum, when out comes the tooth.

I have used the instrument on many occasions with the greatest success, and also lent it to several members of the profession, who have been well pleased with it. There is no trephining or punching where it is used.

I am of opinion that if the hinge-jointed screw was fixed on to the handle of my namesake's splendid tooth shears that it would answer as well as the detached framed screw now used.

C. represents my small tooth forceps, of which I have three sizes, for removing the shells or crowns of the milk teeth, in three and four year old horses, and two and three year old cattle.

Aspatria. HY. THOMPSON, M.R.C.V.S.

VETERINARY SOCIETIES.

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

The usual summer meeting of the members was held at the Great Northern Hotel, Peterborough, on Tuesday, June 27th, when the following members and gentlemen were present:—Professor J. Penberthy; Messrs. J. W. Gresswell, Peterboro'; W. H. Brooks, Leadenham; T. A. Rudkin, Grantham: J. Smith, Huntingdon; T. W. Turner, Sleaford; J. Mackinder, Peterboro; H. H. Truman, March; R. W. Clarke, Horncastle; A. J. Sellers, Market Deeping; A. Lennox, Crowland; E. C. Russell, Grantham.

The minutes of the last meeting held at Grantham were read and confirmed.

Letters and telegrams were read from members who found that they were unable to be present.

A letter was read from the Secretary of the Victoria Veterinary Benevolent Fund thanking the Association for the liberal subscription sent to the fund.

The SECRETARY reported that he had written (as requested by the last meeting) to some of the members of the Association, calling their attention to the backward state of their subscriptions. In one case the letter had been returned through the dead letter office and he had received no answer to the other, so it was decided that both names should be erased from the list of members of the Association.

Mr. BROOKS in a very feeling manner proposed that a vote of condolence be sent to Mrs. Hardy, regretting the death of Mr. Hardy, whom they had all known so well and esteemed so highly. Mr. Hardy had been one of the promoters of the Lincolnshire Association; twice he had been their president, and was ever one of their most active members. He was ever ready to give a helping hand to any member of the profession.

Mr. J. Smith, Mr. Mackinder, and the Chairman bore touching testimony to the loss the Association had sustained, and they believed it would be a long time before his place could be filled.

In accordance with a notice on the agenda Mr. Rudkin moved that rule 4 of the Association should be altered calling upon the members to pay their subscriptions at a much earlier date.

Mr. MACKINDER said before Mr. Rudkin's motion was gone into he should like to say that it was his opinion that the whole of the rules wanted revising, and he should like to have a committee appointed to go through

them and revise them and submit their work to the next meeting.

It was decided that a committee consisting of the President, the Secretary, Mr. Rudkin, Mr. Mackinder, and Mr. Smith should undertake the revision, and any member should be at liberty to write to the committee if they had any suggestion to make.

PRESIDENTIAL ADDRESS.

By Mr. GRESSWELL, M.R.C.V.S.

Mr. GRESSWELL said he rose to thank them most sincerely for the compliment of electing him as president for the year, but he doubted his ability to perform its duties with the same efficiency as that of his predecessors. But as far as he was able he would make the year as successful as any that had gone before, and he trusted that every member would do his best to further the interests of the Association by attending the meetings and by expressing their views on the various subjects that came under discussion. The Association was inaugurated at the Albion Hotel, Lincoln, on January 18th, 1883, when thirteen members of the profession were present, but they were growing, and they had now over fifty members. The objects of the Association were: 1st, the elevation of the social position of the profession; 2nd., the establishing and maintaining of a good and friendly feeling amongst its members; and 3rd, the reading and discussion of scientific subjects relating to the theory and practice of veterinary medicine and surgery. Neither were they without any benefit as members of the Association, for as one of the oldest members he could speak feelingly of the pleasure he had enjoyed and the knowledge he had obtained by attending the different meetings. They had kept alive a desire for an increase of knowledge, and had also spread information concerning all new discoveries in science. Their acquaintance with their professional brethren had been cemented, and by their social intercourse and exchange of ideas, had helped to elevate their social and professional position in the world. He did not desire to force his opinions on the members, but if he should happen to differ from any of them they must ever remember that he was open to conviction and that he was prompted by good motives. During the past few years the profession had made rapid strides in scientific research, particularly that of bacteriology; only a few years ago this was scarcely taught in our colleges, but now, by the aid of mallein, tuberculin, and other allied serums, they were enabled to diagnose with certainty, and to successfully combat, two, at least, of the diseases, which commit such ravages amongst our horses and cattle. On this point, he thought, the veterinary surgeon must hold his own, and he hoped their Council would watch carefully their interests, so that the local veterinary surgeon should be able to use mallein, tuberculin, and carry out tests in his own practice, without the aid of a specialist appointed by the Board of Agriculture. Surely their diploma was a sufficient qualification for the performance of such a test. The administration of the Contagious Diseases (Animals) Act, and the subsequent orders of the Board of Agriculture was a subject of great interest to the veterinary surgeon. There have been several laws passed during the century, for the suppression of animal diseases, and for over thirty years the veterinary surgeon had a recognised position, in accordance first with the Privy Council and afterwards with the Board of Agriculture. There had been a veterinary department, but he could not for the life of him see why it had been altered to the Animals Department.

In 1847, Mr. John Gamgee, a V.S., pointed out the certainty of our importing the cattle plague unless some national measures of precaution were adopted throughout the British Isles, and the veterinary profession have been constantly labouring to impress upon the authorities and the public the importance of enactments dealing with contagious and infectious diseases amongst our domestic animals, and this has been consistently done in the face of much influential opposition. And we point out with pardonable pride that in every instance where the advice tendered by the veterinary profession has been acted upon, the results have been most satisfactory. At the time of the rinderpest although the amateur advisers of the Government were lauded as men of high scientific attainments, it was fully proved that they were the "blind leading the blind," and after their insane advice had been tried over and over again, it was found that the only advice which was of any value was that given by a veterinary surgeon, Professor Gamgee. If his advice had been taken twelve months earlier to "stamp out" the disease instead of dallying with it, the nation would have been saved millions of pounds. It takes time to change the habits and customs of Governments, but by a diligent and well-directed effort, the fitness, and the ability of the veterinary surgeon is bound to come to the front. Surely their professional training and general practice must make them authorities, and it is their duty to lead public opinion and not to follow in its wake. The value of the live stock of Great Britain is enormous, their horses, cattle, sheep, and pigs are the best in the world and they are sought for to improve the breeds of other nations. English superiority depended in a large measure upon the maintenance of our live stock at the highest stage of perfection. To the profession, the stock owner is already indebted for valuable assistance, not only in regard to sick animals but also for the improvement of his healthy stock, the time has arrived when they might claim to assume a more public position and demonstrate to the country that the profession contains many members who are capable of doing good service outside the narrow circle of every-day life.

With regard to the Veterinary Department and the working of the Contagious Diseases (Animals) Act, it is true that the profession has been recognised and consulted to some extent, and a lot of good done in the stamping-out of rinderpest, foot-and-mouth disease, pleuro-pneumonia, etc., but a great deal yet remains to be done. It is high time that the whole control of the Department should be placed in professional hands and should be carried on by and through them. Surely there are plenty of good and capable men in the profession who might be trusted to carry out the letter and spirit of the law, and which they would do with greater efficiency and economy, and without the employment of so large a number of unprofessional men, such as policemen, retired army and navy officers, and private gentlemen, all of whom get good salaries, but lack professional knowledge in the disease of animals. In witness of this, notice the unskilful way in which swine fever orders are now being carried out. The restrictions imposed are vexatious and involve a large expense without any satisfactory results. The remedy for all this is very simple and it is this, that the Board of Agriculture should reinstate the Veterinary Department and appoint a skilled professor, or one from a large country district, well up in cattle practice, to the head of that Department; then insist on compulsory notification to a V.S.—not to a policeman, and isolation of animals affected with a contagious disease. The veterinary surgeon should then report his opinion to the Board of Agriculture or some local authority, and they could then act through the veterinary surgeon. Again, why should one take so many districts and another not be allowed a single case?

Another question that requires great caution from the Government is tuberculosis. Swine fever has cost the country large sums of money every year, and the speaker was afraid that this and tuberculosis would heavily tax the country for years to come. There was one disease

that he considered might be stamped out and that was glanders. If the Board of Agriculture would leave swine fever and take up glanders, their efforts might be crowned with success. He thought the muzzle had checked the spread of rabies.

Mr. Gresswell continued that the question of the public health was commanding increased attention every year, and so long as meat and milk hold so prominent a place as articles of food, we may feel assured that the life and health of animals must be included as objects of importance in any scheme adopted by the authorities for the welfare of the public. The office of Meat and Dairy Inspector should be filled by a V.S. He is educated up to the standard, his daily work is among cattle, and he alone is conversant with their diseases. A step has been taken in the right direction with regard to hereditary diseases in entire horses. He was pleased to see that some of the examiners at shows were determined to carry out their duties without fear or favour, and in his opinion no entire horse should be allowed to travel publicly if suffering from any hereditary disease. He considered that the time had come for the profession to come to some understanding with the Society for the Prevention of Cruelty to Animals. During the past few years several of their members had been prosecuted for various forms of so-called cruelty. It seemed to him that the Society only made use of them to suit their own ends, but it was necessary now that they should show they would not be dictated to by faddists. In the matter of docking horses, if the Society had issued an Order prohibiting anyone except a professional V.S. from docking them they would have proved that they were a humane body. He maintained that as public opinion required that horses should be docked, and if the profession refused to do it, it would still be performed by horse dealers, grooms, blacksmiths etc. He did not think that the pain of the operation was beyond the slightest if skilfully performed. Mr. Gresswell thought that magistrates might be more careful before they imposed fines for alleged cruelty, and instanced cases where he considered the facts had been grossly misrepresented. In conclusion he thanked them for their patient hearing, and cherished the hope that many of the things he had complained of might be speedily rectified.

A hearty vote of thanks to the President for his splendid up-to-date address was carried unanimously.

THE EXAMINATION OF MEAT, AND THE INSPECTION OF DAIRIES, MILKSHOPS, ETC.

By Professor PENBERTHY.

Professor PENBERTHY then gave a splendid address on the above interesting subject. He said he knew it was unnecessary for him to adduce any evidence to convince them of the dangers connected with eating certain flesh and drinking certain milk. He was well aware that their daily work must bring to them the convictions that the adequate inspection of these articles of diet was necessary. This very conviction, arising out of their special and privileged knowledge of the subject, rendered it imperative, that they as members of the community should continue to bring the matter prominently forward on every suitable occasion, and to show it to the public in all the light of scientific knowledge. It is important to bear in mind that no scientific knowledge, however much it might add to the public good, could be applied to that purpose much in advance of public opinion. The British public, before accepting the dictates of science, and adopting its measures required to be convinced of the necessity and the benefit which would accrue therefrom. At the present moment, the Professor believed, the public were becoming cognisant of certain facts. There was a more personal realisation of the dangers associated with the indiscriminate consumption of flesh and other animal products. For large communities it has been wisely decided that systematic inspection of meat and dairies should be rigorously carried out. The inspection ought to be general and compulsory. If it is good for dwellers in large towns to be protected from disease communicable from the lower animals was the danger the less in other parts of the country that the dwellers therein should not receive the same protection?

The effect of efficient meat and dairy inspection would be an improvement of the public health, a high ideal for the action of the State and the individual. The Professor had no doubt but that in the main the effect of efficient inspection would be favourable to the stock-owner. The health of stock would be improved, and their contagious diseases diminished. It was, however, most important that the inspection should be carried out in a thoroughly efficient manner. The study of the diseases of animals supplying flesh and milk was the life work of the V.S., and when the services of such men were available they, and they only, should be called on to determine as to the existence or non-existence of disease in live animals and in those slaughtered for human consumption. Having delivered his opinion on these matters it naturally became the duty of the Medical Officer of Health—whose special duty is the preservation of the public health—to settle whether the product of any animal was fit for the food of man.

To employ an unskilled person, whether he be the policeman or the town crier for such duties, is to misplace a most important function, to keep alive a danger which undoubtedly menaces the public health, whilst on the score of smaller salary it is most unlikely to prove economical.

The Professor then went on to prove that the V.S. was the only person who was fitted for the office of Inspector of meat, dairies etc. He alone knew what the diseases of animals were and what effect those diseases would have on the slaughtered meat. In the inspection of cowsheds he failed to see how anybody but a V.S. could be employed for the service, for he was the only one who had any knowledge of the animal health. The V.S. was the only one who could tell what air space was requisite for each animal. He was aware that there was an idea about that every animal should have 800 cubic feet of air space, but the Government does not say any such thing. It had been found necessary to draw up certain model regulations and 800 cubic feet had been put in, but it was left for the veterinary surgeon to decide in every individual case. With regard to tuberculosis in dairies, this was not the result of close atmosphere, narrow space or dirt, for it was well known that the Queen's dairies had been very seriously affected with this disease although the cows lived under the most sanitary conditions, had perfectly pure water and food, abundant air space and every attention. Unsanitary conditions are not responsible for tuberculosis, and this was the reason why authorities should take the greatest care in issuing their dairy inspection orders. The orders ought to be submitted to professional men before they were issued; they should be on thorough scientific lines, and impose as few hardships as possible.

In conclusion the Professor said he had opened a large subject which wanted well thrashing out, and if the members of the profession would only realise their position and show to the public that they, by their education, were the only men fitted for the work, they would soon have no longer to see unqualified persons filling positions and drawing salaries which by right belonged to the V.S.

DISCUSSION.

The PRESIDENT was pleased that he had suggested to the Professor the subject upon which he had so ably spoken, and he hoped a resolution would be sent from

that meeting to their Council, that special lectures and lessons in the use of the tuberculin and other tests should be given.

Mr. MACKINDER said the Dairy Orders had been brought before his district within the last few weeks, and there did not appear to be any uniformity as to the manner in which the different authorities were going to carry them out. The public did not hardly know what to think, and some even supposed that it was intended to shut the cow places up altogether. He did not think that the medical officer was the proper inspector for cowsheds, and he was out of his place when he went into one. With respect to the examination of meat, what did the sanitary inspector know about it, but he would go and seize a quantity, put it into a night soil cart and take it away for the medical officer to examine. He considered the authorities should find a man who did understand these things and appoint him to the office. He should be glad if a resolution to that effect was sent to their Council.

Mr. SMITH thought that in taking up this question they only wanted someone to lead them, and he would propose "That the members of the Lincolnshire Veterinary Medical Association respectfully suggests to the Council of the Royal College of Veterinary Surgeons that in view of the different local authorities applying to the Local Government Board for powers to control the inspection of meat and the management of dairies and cowsheds, that special efforts be made by the Council to enquire into the idea of providing means to secure the rights of the profession."

Mr. RUDKIN seconded, and the resolution was carried unanimously.

The SECRETARY read an invitation for delegates from the Association to be sent to the Congress of the Royal Institute of Public Health to be held at Blackpool from the 21st to 26th of September, and it was carried that the President and Secretary attend as delegates.

Votes of thanks to the President and to Prof. Penberthy brought the meeting to a close.

The members then sat down to an excellent dinner, the usual patriotic and loyal toasts being duly honoured.

E. C. RUSSELL, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The usual quarterly meeting was held at the Grand Hotel, Manchester, on June 22nd, when Mr. J. McKinna presided and about 20 members attended.

Apologies for non-attendance were announced from Professors MacFadyean and Williams, and Messrs. J. J. Potter Carter and Alexander Lawson.

The minutes of last meeting were submitted, and approved upon the proposition of Mr. J. H. Carter, seconded by Mr. J. Abson.

The President having drawn the attention of the members to the preferment of Mr. James King to the post of Meat Inspector for London, it was unanimously resolved to convey, through the Secretary, the congratulations of the Society to him.

Mr. Thomas Hadfield, M.R.C.V.S., was duly elected for membership upon the motion of Mr. Wostenholme, seconded by Mr. Carter.

INTERNATIONAL CONGRESS OF VETERINARY SURGEONS AT BADEN-BADEN.

The SECRETARY having read the minutes of a special meeting convened to consider this question, it was moved by Mr. Wm. Woods, seconded by the President and carried unanimously that the Treasurer (Mr. Wolstenholme) and the Secretary (Mr. Harry Locke) should represent the Society at the Congress, and should be allowed the sum of twelve guineas each for their expenses.

Mr. S. LOCKE, referring to the other portion of the minutes, with regard to the election of members to Council, said, as he was one of those members, he wished to thank the members of the Society for their promised support, which, however, was not needed, because the nominations being only eight and the vacancies only eight all those nominated were re-elected to council. He was very pleased to find that Professor McCall was re-elected, and this opinion would be shared by the majority of practitioners in the United Kingdom.

Mr. WOLSTENHOLME having referred to the death of Mr. Buckley, the oldest member of the Association, the PRESIDENT proposed, and Mr. S. LOCKE seconded, that the fact be recorded in the minute book accompanied by an expression of the Society's regret at the untoward event.

The PRESIDENT, before introducing Dr. Delépine, reminded the members of the Congress at Blackpool, which was to be held on September 21st and 26th next.

SOME OF THE ECONOMIC ASPECTS OF THE PREVENTION OF TUBERCULOSIS IN CATTLE.

By SHERIDAN DELEPINE.

(Procter Professor of Pathology, Owens College, Manchester.)

I.—INTRODUCTORY REMARKS.

I need hardly apologise for bringing once more before you the question of tuberculosis. The position taken by the Government makes it necessary for thinking and practical men all through the country to express their views.

In an address delivered at Newcastle at the beginning of this year the President of the Board of Agriculture gave the following arguments to prove that the time had not yet come for the Government to take any action (see *Manchester Guardian*, Jan. 30, 1899).

1st.—The data were still too indefinite and wanting in preciseness to justify them in asking Parliament for great votes of public money, or to impose upon stock keepers compulsory measures, entailing great loss.

2nd.—They were not yet sure that those measures would be effectual.

3rd.—The tuberculin test might be administered so as to render cattle incapable of reaction on a second application of the test, and that might be productive of fraud.

4th.—People who have studied the question most closely were not agreed as to the conditions under which the test should be applied.

5th.—The disease was difficult of detection unless one could rely on some such discovery as the tuberculin test.

6th.—At present too little was known, too much doubted, for Parliament to be justified in imposing upon the country heavy expenditure or wholesale restrictions, which would be strongly resisted in many quarters, and which might not do anything effectual for the extinction of the disease.

II.—GENERAL FACTS WHICH MAY BE ACCEPTED AS PROVED.

On many occasions since 1892 I have repeatedly given you data, which seemed to me to show clearly:

1st.—That tuberculosis is extremely prevalent in cattle, and that this fact was recognised by the large majority of authorities.

2nd.—That a large amount of tuberculous milk is supplied by dairies, this being a source of serious danger to public health.

3rd.—That the presence of tuberculous animals in a herd is a source of infection detrimental to the farmer.

4th.—That tuberculin gives the means of rapid diagnosis, and that diagnosis thus obtained is sufficiently accurate to fulfil all the requirements of practice.

These statements were based on the study of the work of Villemin, Koch, Chauveau, Gerlach, Johne, Bollinger, Bang, Nocard, Arloing, McFadyean, etc., and on my own personal observations. Of late, working in conjunction with Dr. Niven in Manchester, Prof. Hope of Liverpool, Mr. Gair Ashton, M.P., Mr. G. R. P. Ward, and Mr. J. Laithwood, of the Cheshire County Council, Mr. King and Mr. Holburn of the City of Manchester, I have greatly extended my own field of observations and have been more and more confirmed in the belief that the above statements can be fully substantiated.

Let me however, before passing further, point out that my conclusions as to facts are in accordance with those published in the 1895 report of the Royal Commission on Tuberculosis. This I consider as strong evidence in favour of the position I had already taken before the appearance of that report. But whilst I agree as to facts, I think the Royal Commissioners have shown in the 1898 report undue timidity with regard to preventive measures. The doubts which Mr. Long expresses can only be accepted with regard to the nature of the measures to be adopted, and not as affecting the facts indicating the need of such measures.

1. We all agree that at the very least 20 per cent. of our cows are tuberculous.* So far as I can see the only form of disagreement existing among experts with regard to the prevalence of tuberculosis is that many believe the proportion of tuberculous animals to be greater than I have just stated. With regard to cattle in the counties of Cheshire and Lancashire I have collected much evidence during the past five years, and I can say confidently that the above estimate does not represent the total amount of tuberculosis in our district. From the table in which I have summarised the observations made at Ford Bank, at the Dairy Institute of Worleston, and at the Agricultural School at Holmes Chapel you will see that, according to age, from 20 to 31 per cent. of the milch cows were tuberculous in farms where the disease had been kept in check by careful sanitation (Worleston and Holmes Chapel) and that the proportion had reached from 75 to 100 per cent. in another farm, also well kept, but where the disease had evidently existed for a long time (Ford Bank).

2. We all agree that in its early stages tuberculosis is difficult to detect, by clinical examination. Mr. Elliott tells us that skilled veterinarians would not be likely to condemn from mere clinical examination even 10 per cent. of the tuberculous animals in the country* therefore do not propose to rely on such examination. But we have in tuberculin a reagent which fails very seldom when properly used.

3. There is an overwhelming concensus of opinion regarding the value of tuberculin as a means of diagnosis, and its harmlessness. I cannot do better than state the words of Prof. McFadyean who, as is generally known, has not been too rapidly convinced of the value of tuberculin.

"No person, whether he were a layman or a veterinary surgeon, when summoned to look at an animal suspected of showing symptoms of tuberculosis, could give an opinion that was really of much value, in the great majority of cases, unless he used tuberculin." Prof. McFadyean "has the most implicit faith in tuberculin as a test for tuberculosis, when it is used on animals standing in their own premises and undisturbed." (Report of the Royal Commission on Tuberculosis 1898, minutes q.1259, p. 62.)

The Commissioners endorse these remarks by saying "we entirely accept these conclusions, and entertain

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GROUP I.								
Animals 5 years and over	48	27	21	43·8	—	—	—	—
Ford Bank old stock	5	0	5	100	—	—	—	—
„ „ new stock	11	5	6	54·54				
Cheshire C.C.	32	22	10	31·25				
GROUP II.	40	31	9	22·5	1	0	1	100
3 years and up to 5 exclusively								
old stock	4	1	3	75				
Ford Bank new stock	7	7	0	0				
Cheshire C.C.	29	23	6	20·69	1	0	1	100
GROUP III.								
2 years up to 3 years exclu.	13	9	4	30·77	1	0	1	100
Ford Bank, old stock	3	0	3	100				
„ „ new stock	6	5	1	16·6				
Cheshire C.C.	4	4	0	0	1	0	1	100
GROUP IV.								
1 year up to 2 years exclu.	6	6	0	0	5	3	2	40
Ford Bank old stock	5	5	0	0	4	2	2	50
Cheshire C.C.	1	1	0	0	1	1	0	0
GROUP V.								
Up to 1 year exclu.	6	6	0	0				
Ford Bank old stock	6	6	0	0				
GRAND TOTAL.	113	79	34	30	7	3	4	57·14

no doubt as to the value of tuberculin, provided the test be applied by a competent veterinary surgeon, and that the tuberculin is of trustworthy quality." (Report of the Royal Commission on Tuberculosis 1898, p. 4.) From a large number of observations which have been carried out either under my direction or within my own sphere of observation, I am able to fully endorse these remarks.

I see in this no basis for the doubts expressed by the Minister of Agriculture, for reliable tuberculin and veterinary advice are both available in this country.

4. With regard to the possibility of rendering tuberculous cattle so tolerant to the action of tuberculin that they cease to react to the test, I think that the fear expressed by Mr. Long is not altogether justified. His statements practically imply—

(*a*) That it is quite easy to render tuberculin useless as a diagnostic agent, by a previous injection of that fluid.

(*b*) That fraudulent use of tuberculin would become generally prevalent if measures were taken against tuberculosis on the basis of the tuberculin test.

(*c*) That the authorities would be incompetent to deal with such an abuse.

With regard to the first point I do not think that a respectable practitioner would willingly lend himself to the practice of injecting tuberculin for the purpose of helping a farmer to deceive a buyer or inspector.

The use of tuberculin by the farmer himself would not be without danger of loss to himself, for a careless and repeated administration of subcutaneous injections might often lead to septic infection. A single fraudulent injection of tuberculin, to be of any use would have to be made less than a fortnight before the inspection of the animal, and even in that case the results would not be certain.

Repeated injections do not produce tolerance rapidly, as shown by the experiments which Mr. James Laithwood has made for the Cheshire County Council.

From Feb. 6 to April 27th he tested 4 times 5 tuberculous cows with the following results :

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29	+	+	+	—
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41	+	+	+	—
42	+	+	—	—

It will be noticed that none of the cows reacted the 4th time they were tested, and that one of the cows ceased to react at the third injection. But the last three injections were made at intervals of 13 days and 22 days respectively. It would, therefore, be necessary for a farmer to use tuberculin very systematically to obtain a degree of tolerance upon which he could rely to deceive the inspector or the buyer. From the record just given I have excluded a 6th cow, which had given a doubtful reaction the first time and had not reacted afterwards. Mr. Laithwood states that she had exhibited during the various tests an irregular temperature. After death no tuberculous lesions could be found, and the liver contained an enormous number of flukes. This case shows clearly the necessity of a careful attention to the variations of temperature to which each animal is liable before the application of the test.

Regarding the probability of a large number of farmers using the test fraudulently to deceive buyers or inspectors, I believe that this would be greatly influenced by the view which the law might take of such an action. It seems to me that the selling of a cow under such conditions would not be less criminal than the selling of an adulterated article of food or of any article under false pretence. With regard to inspection, surprise visits would probably be the best remedy against fraud, for it would be both costly and inconvenient to the farmer to keep whole herds in a state of tolerance.

5. Experts are also of opinion that by thorough and general measures, tuberculosis could be stamped out just in the same way as pleuro pneumonia has been stamped out. Some of them, however, shrink from recommending such a measure on the ground of expenditure. In this I think they are quite right, but it is possible to deal with tuberculosis efficiently without having recourse to methods as radical and wasteful as those which are used in connection with pleuro pneumonia.

III.—EXPENDITURE IS THE CHIEF GROUND FOR ADMINISTRATIVE INACTION.

The only apparently sound argument used by the the Government to justify postponement of action, is that the expenditure necessary to eradicate tuberculosis from our cattle would be considerable.

I will grant at once that this is a strong argument, but does it prove that inaction is justifiable ?

Have we not evidence to show that if we allow tuberculosis to remain unchecked, we must be content to have a milk supply so contaminated, that about one-sixth of all the milk we give to our children contains germs which may at any time begin their work of destruction, and not only shorten but embitter many lives ? The results of the examination of 282 samples of milk, which have beed tested in my laboratory during the last three years show that I do not exaggerate this danger.

Is not that enough to justify expenditure, and *extraordinary expenditure*, even if there was not, as there is in this case, the prospect of ultimate commercial gain ? For it cannot be denied that the existence of tuberculosis in a farm is a source of loss.

Expenditure has undoubtedly been a stumbling block whenever an attempt has been made to enforce the IMMEDIATE slaughter and condemnation of ALL animals found tuberculous, so that, notwithstanding the wealth of this country, there is much to be said for the position taken by the Minister of Agriculture.

We have had before us clear examples of countries (*e.g.*, Belgium, Massachusetts) starting with very stringent measures, and which have been obliged to reduce the stringency of those measures on account of cost. We have, however, a not less instructive example in Denmark showiug the reverse tendency. Professor Bang initiated in that country in 1893, measures having for object to give owners facilities for their fight against tuberculosis, without the Government taking any very onerous part in the fight. Five years after this we find him speaking favourably of far more complete measures.

I take from his address delivered in Paris last summer, and reported in *La Semaine Medicale* for August 3, 1898, the following sentences which I have translated as accurately as possible :—

"After reviewing all that has been attempted in various countries one sees that the ideal prophylactic measures which one should adopt to combat bovine tuberculosis, and to make it disappear radically are the following :—

"(*a*) To recognise all the animals affected with tuberculosis and to notify them, this is to be followed by an inspection of all the beasts which have been exposed to the contagion.

"(*b*) Destruction of all animals sufficiently diseased to be a source of infection.

"(*c*) Complete isolation of animals slightly affected, these to be slaughtered as soon as the disease tends to progress.

He adds, however, that

"The carrying into effect of such a programme would present great difficulties."

It will be seen by comparing these *desiderata* with the measures which I suggested at Keswick, five months

3rd.—That the presence of tuberculous animals in a herd is a source of infection detrimental to the farmer.

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Is not that enough to justify expenditure, and *extraordinary expenditure*, even if there was not, as there is in this case, the prospect of ultimate commercial gain ? For it cannot be denied that the existence of tuberculosis in a farm is a source of loss.

Expenditure has undoubtedly been a stumbling block whenever an attempt has been made to enforce the IMMEDIATE slaughter and condemnation of ALL animals found tuberculous, so that, notwithstanding the wealth of this country, there is much to be said for the position taken by the Minister of Agriculture.

We have had before us clear examples of countries (*e.g.*, Belgium, Massachusetts) starting with very stringent measures, and which have been obliged to reduce the stringency of those measures on account of cost. We have, however, a not less instructive example in Denmark showiug the reverse tendency. Professor Bang initiated in that country in 1893, measures having for object to give owners facilities for their fight against tuberculosis, without the Government taking any very onerous part in the fight. Five years after this we find him speaking favourably of far more complete measures.

I take from his address delivered in Paris last summer, and reported in *La Semaine Medicale* for August 3, 1898, the following sentences which I have translated as accurately as possible :—

"After reviewing all that has been attempted in various countries one sees that the ideal prophylactic measures which one should adopt to combat bovine tuberculosis, and to make it disappear radically are the following :—

"(*a*) To recognise all the animals affected with tuberculosis and to notify them, this is to be followed by an inspection of all the beasts which have been exposed to the contagion.

"(*b*) Destruction of all animals sufficiently diseased to be a source of infection.

"(*c*) Complete isolation of animals slightly affected, these to be slaughtered as soon as the disease tends to progress.

He adds, however, that

"The carrying into effect of such a programme would present great difficulties."

It will be seen by comparing these *desiderata* with the measures which I suggested at Keswick, five months

before the publication of Professor Bang's statement' that they are in substantial agreement with mine. I, however, suggested some means of dealing with the questions of compensation and inspection which are not included in Professor Bang's suggestions.

When it is remembered that Professor Bang has since 1893 been the originator of preventive measures based chiefly on the action of owners assisted to a very slight extent by the Government, it is very significant that he should suggest more complete measures at the end of his five years experience.

The question of cost is such an important one that, however much outside my ordinary sphere of work, I have been obliged to study it in order to be able to understand the value of the objectious raised by practical men. Realising fully the complexity of the economic aspects of farming, I have confined myself to those points which seemed to me capable of clear proof and do not require an expert knowledge of farming, which I have not.

IV.—Practical Experiments at Ford Bank, Worleston, and Holmes Chapel.

Towards the end of 1897, Mr. Gair Ashton, at my advice, determined to stamp out tuberculosis from the herd which is kept on the estate at Ford Bank, Didsbury. The work was carried out, generally speaking, according to the lines I suggested, and Mr. Ashton placed at my disposal all the information I might wish to have regarding the results.

The Ford Bank experiment is one of considerable practical value owing to the great care and ability with which all the data have been collected by Mr. J. Jones, and the very liberal and public spirited way in which Mrs. Ashton and Mr. Gair Ashton have conducted the experiment so as to make it as useful as possible to all interested in the matter.

In May, 1898, the approximate value of the old stock, which consisted chiefly of well-bred Yorkshire shorthorns (not pedigree cattle), was :—

	£
7 milch cows at £19	133
2 new milch cows at £22 10s.	45
3 heifers at £14	42
3 young bullocks at £8	24
3 heifer calves (six months) at £4	12
3 young calves at £2	6
21	£262

Thirteen of these gave a positive reaction with tuberculin, and were slaughtered at once, *viz.* :—eight cows, three heifers, and two bullocks, which were all found (P.M.) to be tuberculous.

Except in one case all the viscera had to be condemned : in addition to this, one whole carcase was condemned on account of generalised tuberculosis, and the half of another was also found unfit for food.

	£	s.	d.
The sum realised for the carcases was	159	4	8
The value of the remaining stock was :—			
1 cow	22	10	0
1 bullock	8	0	0
6 calves	3	0	0
	£207	14	8
	£	s.	d.
The actual loss was therefore	54	5	4
To which must be added the veterinary charges	10	0	0
	£64	5	4

There was also a serious loss on dairy produce due to the immediate slaughter, and which would not have occurred had arrangements been made to slaughter the diseased cows only at such time when they were in a proper condition, and it had been possible to replace them rapidly. (The milk of diseased cows should, of course, always be sterilised before use).

It will also be evident that if the herd had been submitted to periodical inspection every six months, and animals reacting separated and fattened at once, they could have been gradually replaced without interference with dairy work, and sold to the butcher at a much lower loss, since no animal would have been in such a state of tuberculosis as to necessitate condemnation of anything more than some viscera.

Finally, had the testing been done as part of a general system of inspection the cost of it would have been considerably reduced.

On all these grounds I think I may fairly state that the actual loss of £64 5s. 4d. is much greater than it should have been.

It will be also noticed that the proportion of milch cows affected was greater than usual, eight out of nine cows being found tuberculous (88 per cent.). This was easily accounted for by infection from cow to cow.

The amount of air allowed for each animal varied from over 600 to 1000 cubic feet, and the cattle were kept apparently in perfect condition.

The first tuberculin testing was carried out by Mr. Locke, Mr. King, and Mr. Holburn ; then all the diseased animals were slaughtered at the Manchester Abattoir, inspected by Mr. King and Mr. Holburn, and portions of organs sent to me for examination. The experiment was therefore carried out with sufficient care and publicity to make the results absolutely reliable.

The next step taken was to replace the diseased stock. The shippons having heen thoroughly cleansed and disinfected, new stock was bought subject to the tuberculin test. That is to say, the cows were kept at Ford Bank for about a fortnight, during which they were tested, and only those not reacting kept. A fee of £3 was paid to the seller as a general consideration for the trouble caused by this arrangement. But I think he found further compensation in the prices he charged for the cattle sold under these special conditions.

As it is probable that considerable care was taken to avoid the supplying of cattle likely to react, the results of the testing of this new stock is of great interest, as they indicate the state of things which would probably prevail under the very best market conditions. These results are shown in the table at p. 76, (Ford Bank new stock) and may be summarised as follows :—

Out of 11 cows, 5 years of age or more, 6 or 54·54 per cent. reacted ; out of 13 cows, or 3 heifers 2 to 5 years old, 1 or about 8 per cent. reacted.

Among the 13 young cows and heifers there were six animals, 3 years old, none of which reacted, but the entire absence of tuberculosis from that group was probably a mere accident, as the other figures in the table clearly indicate.

Most of these animals have now been at Ford Bank a year or more and have been retested once. The only case in which a positive reaction was obtained subsequently after an interval of five months, was that of a cow, 7 years old, which had just calved at the time when tuberculin was injected the first time, so that it is quite possible that that the first negative reaction could not be relied upon. Some of the young animals remaining from the old stock have now been tested three times in the course of a year ; they have continued to give a negative reaction and are in splendid condition.

I must now refer to the *Cheshire County Council experiments*. Through the kindness of Mr. R. P. Ward, the organising secretary, I am able to give you the results so far obtained and bearing on the subject I am now dealing with.

This important experiment was conducted on very much the same lines as the Ford Bank experiment, but

about one year later. A general account of the work done up to the beginning of March has already been published (*Manchester Guardian*, March 23rd, 1899, and several other newspapers). I cannot do better than to quote verbatim part of the account given in *The Guardian* :—

"The herds at the Dairy Institute, Worleston, and at the Agricultural School, Holmes Chapel, were tested with tuberculin with the following results : In the Worleston herd, numbering 54, 37 were found to be healthy, 14 reacted to the test, and hence were classed as tuberculous, and three were classified as doubtful, In the Holmes Chapel herd of 17, 13 were found to be healthy, three tuberculous, and one doubtful. Of those classified as doubtful, one had just calved, two were about to do so, and the other had a high temperature before injection ; hence it was not considered that a reliable conclusion could be come to in these cases. In each herd there was a valuable shorthorn pedigree bull, both of which reacted. The next step was to prove the reliability of the test by slaughtering those which had reacted and having a careful and thorough post-mortem examination of the bodies, made by reliable men. It was, however, deemed advisable to retain a few of those which were considered tuberculous for further experiments. Accordingly arrangements were made for ten animals—including the two bulls—to be taken to the abattoirs in this city and there slaughtered, and the bodies examined by Mr. King, Chief Veterinary Inspector for Manchester, Mr. Storrar, Chief Veterinary Inspector for the City and County of Chester, and Mr. Laithwood, Chief Veterinary Inspector for Cheshire County Council. Arrangements were further made with Professor Delépine, of Owen's College, that should any difficulty arise in detecting tuberculosis in any of the carcases he should be called in to make a microscopic and physiological examination, so that no doubt might remain. Again, in order to test whether or not the milk of the cows that had reacted was tainted with tuberculosis, a sample from each cow giving milk was sent in a special sterilised bottle to Professor Delépine, to be analysed bacteriologically and physiologically. Mr. Laithwood examined the udders of all the cows that had reacted at the Dairy Institute, Worleston, and found only one with an indurated udder, the remainder, so far as could be ascertained by manual manipulation, being entirely free. The slaughter of the animals and the post-mortem examination took place in Manchester on the 8th instant, in the presence of three members of the Cheshire County Council and of the organising secretary. Of the eight cows sent, two were in full milk, having but recently calved, and were low in flesh ; one had an indurated udder, one was a little over two months off calving, was a heavy milker, and a lean shelly cow. One cow was fat and ready for sale, and another in very good condition. Hence they represented all classes, and consequently the loss on them may be taken as approximating, if not exceeding, the average of what would ensue by sacrificing animals at once under such conditions.

The veterinary inspectors found every animal more or less affected with tuberculosis, and have since made a detailed report of each. The disease was chiefly found in the glands, lungs, and liver, and in the majority of cases the inspector certified that the " carcases were otherwise very good. The examination is regarded as strong evidence of the reliability of the test. The examination, of course, was most complete, being carefully done by experienced men, who not only know what they were looking for, but exactly where to look. All the carcases were declared suitable for human food, and they were placed in the hands of a salesman, who disposed of them at prices varying from £22 1s. 8d. to £4 14s. 1d. (less expenses). All the cattle had been carefully valued before being sent away, such valuation being their worth to the farmer as milking cattle or dairy stock. The total value of the nine animals was £149 18s. 6d. Their sale produced £97 7s. 0d. showing a total loss of £52 11d. 6d. The main loss was in the cows which had recently calved. Being heavy milkers they were low in flesh. Hence, though high in value as dairy cows, they were of low value for selling as meat. The remaining cows that reacted to the test had been isolated from the rest of the herd, and further experiments will be conducted to ascertain if tuberculosis can be cured. The experiments already carried out show that the disease is not hereditary."

A general consideration of the results obtained at Worleston, Holmes Chapel and Ford Bank leaves no doubt as to the value of tuberculin as a diagnostic agent, that is to say as far as the positive reactions are concerned. This is a matter of great importance from an administrative point of view, for tuberculin could hardly be employed for administrative purposes if it were found that many non-tuberculous cows gave a reaction similar to that given by tuberculous cows. With regard to the value of the negative reactions, this has not been tested in our experiments, but numerous observations have been made regarding this point by other observers, and the results have also been satisfactory.

It is also evident that the immediate loss caused by indiscriminate slaughter of all tuberculous animals is very considerable. There was a loss of £52 11s. 6d. on the nine tuberculous animals from Worleston ; that is a little more than £5 16s. per head. At Ford Bank the loss on the 13 animals slaughtered was £64 5s. 9d., *i.e.*, a little under £5 (veterinary charges included). On the 22 animals from both places the average loss was nearly £5 7s. per head.

The number of cows and other cattle above two years of age in the county of Cheshire alone was, according to the Returns of the Board of Agriculture, 115,193 in 1897 Admitting that about 20 per cent. of these cattle were affected by the disease, this would give, roughly speaking, some 23,000 tuberculous animals, and if all these had been dealt with as they have been at Ford Bank and Worleston, the total immediate loss would not have been less than £123,000. It is not possible to make a similar calculation for the whole of the United Kingdom, for we have evidence which tends to show that the disease is too unequally distributed to allow of this being done, but still it would probably be about 55 times greater, *i.e.*, about £6,765,000. You will notice that in this calculation I have excluded cattle under two years. My reason for doing so is that on an average the slaughter of young tuberculous cattle is not a source of loss. In fact, it is not till the calving period has been reached that the losses begin to be serious. The cows which have recently calved, and specially the heavy milkers, have a very poor value as meat compared to their value as dairy stock, so that the loss on these cattle is absolutely and relatively very heavy. I have already pointed out the desirability of not slaughtering milch cows till their milking period is over (communication which I made at the begining of this year for the Cumberland and Westmoreland Chamber of Agriculture), and the result of the Cheshire County Council experiment have entirely confirmed this view.

V.—Losses caused by the slaughtering of cattle of various ages.

In order to obtain further information on this point I divided all cattle into five groups :—

I. 5 years and over.
II. 3 years up to 5 exclusive.
III. 2 " " 3 "
IV. 1 " " 2 "
V. Under 1 year.

Then I found for each group the number of tuberculous animals, their estimated value, under ordinary circumstances, as dairy stock, their value as meat after they

had been slaughtered on account of tuberculosis, and thoroughly inspected at a public abattoir by competent veterinary inspectors.

I hoped in this way to obtain some practical information which might serve as a guide to those wishing to obtain herds free from tuberculosis without unnecessary waste of money. The numbers at my disposal are unfortunately small, but I hope that other investigations conducted on the same lines will place us before long in possession of more complete data.

Owing to the marked differences between the returns from Ford Bank and the other two farms, they may with advantage be summed up separately.

FORD BANK.

	Percentage of cows and heifers tuberculous.	Estimated value of 100 of animals before testing.	Loss on 100 such animals after slaughter of tuberculous ones.	Percentage loss on capital.
		£	£	
Group I.	100	1900	735	38
„ II.	75	2015	622	30·86
„ III.	100	1400	—	—
„ IV.	—	800	—	—
„ V.	—	320	—	—

WORLESTON AND HOLMES CHAPEL.

		£	£	
Group I.	31·25	1515	189	12.47
„ II.	20·69	1800	240	13·33
„ III.	—	1300	—	—
„ IV.	—	800	—	—

It is evident from these figures that both experiments prove the same thing, *viz.*, that if herds are to be kept free from tuberculosis *by removing all animals which may become tuberculous this must be done before they have reached their third year.* Before that date the slaughter of tuberculous animals does not involve any serious loss to the farmer. At a later period the loss becomes very serious, more especially between the third and fifth year, when the cows have their greatest value as milkers. With regard to bullocks the problem is simpler, but it is equally evident that all tuberculous animals should be slaughtered before they are two or three years of age.

It seems, therefore, evident that if all tuberculous stock over three years were eliminated from our herds, it would be quite easy for the farmer, assisted by competent veterinary surgeons, to keep his stock free from tuberculosis ever after. without any serious expenditure, and with the definite prospect of doing away with the depreciation which tuberculosis at present causes.

The problem which we have to face at present is therefore the rapid

VI.—REMOVAL OF THE TUBERCULOUS ANIMALS ABOVE THREE YEARS OF AGE, (or perhaps, to give a more natural limit, of all cows which are or have been in calf.)

I have already shown that this should not be done by indiscriminate slaughter, which would cause a very considerable and unnecessary loss.

I would on the contrary again suggest that, of the reacting cattle, only the cows with tuberculous udders, or the animals showing evidence of wasting, should be slaughtered at once. The others would then be isolated in suitable sheds, which need not be so expensively constructed as those intended for sound dairy cows. Bullocks, and cows not in calf, should be rapidly fattened for the butcher. Cows in calf or in milk should be allowed to calve and yield milk till the period of lactation ceases, or can be made to cease without inconvenience to the animal, which should then be fattened. The calves should be separated from their dam and fed on milk from the tuberculous cows after this milk has been thoroughly sterilised. The milk which could not be employed for that purpose should be utilised for making butter or cheese after the cream has been sterilized by continuous heating at a suitable temperature.

I have not found that cream heated up to 85 deg. C., as recommended by Bang, gave good butter. But I have, I think, succeeded in killing the tubercle bacillus, *in cream*, at a lower temperature without the butter made with that cream acquiring any unpleasant flavour or showing any alteration of properties. I cannot enter here into these experiments which are not yet complete.

I think by taking these precautions tuberculous cattle over three years of age could be disposed of more profitably than by immediate slaughter, and the loss on dairy produce not be great.

Still the loss would be sufficiently heavy to make it necessary to find some means of helping the farmer. I have previously expressed my views with regard to the administrative methods which seemed to me most desirable (*The Manchester Guardian*, April 1st, 1898, and *The Lancet*, September 17th, 1898). I think the statements I have made to-day justify the position I have taken regarding the need (1) of compensation for a limited period and (2) of general administrative action. At the same time I have also shown that by voluntary and independent action much may be done, and that by proper management the expense of extirpating tuberculosis may be considerably reduced.

With regard to the special loss caused by tuberculosis of the udder and advanced tuberculosis, rendering the carcase unfit for food, it is not easy to estimate it beforehand.

Of the 27 animals found tuberculous at Ford Bank, Worleston and Holmes Chapel and slaughtered afterwords, 2 or 7·4 per cent. were in such a bad state that the whole carcase of one and the half of the other had to be condemned. Out of the same number of cows reacting, only one had a tuberculous udder, that is about 3·7 per cent.

Professor M'Fadyean has kindly given me the following answers to questions which I asked him on these points. "I have personally examined the udders of about 5000 milch cows and have come to the conclusion that somewhere between 1 and 2 per cent. of them are affected with tuberculosis of the udder. I think that if the regulations suggested by the recent Royal Commission on Tuberculosis were adopted in judging of the fitness of carcases for human food probably about 5 per cent. of tuberculous animals would have to be condemned."

Professor W. Williams, in answer to similar questions, has kindly informed me that: "As near as he could make out 3 per cent. of tuberculous cows have udder disease"

Professor S. Stockman has also given me information regarding the prevalence of tuberculosis in cows slaughtered in Edinburgh and the frequency of tuberculosis of the udder in tuberculous cows. But as a strong effort is being made there to clear the byres from tuberculous animals, and especially of those with tuberculous udders, the large proportion of the latter which he has observed cannot be relied upon for purposes of generalisation.

DISCUSSION.

Mr. WM. WOODS (Wigan) said he could not sufficiently express his gratification at having heard Dr. Delépine's paper, because it dealt with tuberculosis from a commercial standpoint. In considering it from that point of view, it would be useful if the practitioners from different districts stated their difficulties in endeavouring to eradicate the disease because, undoubtedly, different districts would meet with different difficulties. He had found that in town byres in his locality the cattle were almost invariably not younger than the fourth or fifth calf—in other words, none would be below six years old.

There might be exceptions, of course, but, generally speaking, the cow-keepers tried to buy cows of that age, their consideration being as to the greatest quantity of milk rather than as to the quality. In the cases he had tested the reactions had been often as high as 90 per cent., and this fact he had been almost afraid to mention until in conversation with others he found that there were practitioners who had also experienced that great percentage. Now, supposing such a cowshed had to be dealt with, and that the cattle which did not react could be isolated, which was not always very easy to do, it would seem that there were several methods of dealing with it. In the first place it might be—in fact it had been—suggested that those cows which reacted should be fattened off, and that in replacing them the cows should be tested previous to purchase. That sounded reasonable, but it was a very difficult thing indeed to do. The sellers in his district were dealers, who were quite willing to have their cattle tested, but veterinarians knew quite well that in a cow tested after, perhaps, travelling by road a considerable distance and having changed its home two or three times within a week the test would not be reliable. Mr. Woods then spoke of his experience in taking animals on a fortnight's trial, the dealers consenting to same on condition that £2 were paid with each animal returned. He found that three out of every four would react, so that the fourth animal kept would cost some £6 or £8 more than its worth in the open market. Again, in towns the cowkeepers did not want to keep their cows any great length of time—not more than twelve months at the outside. They wanted to milk them, as they say, "one note." Immediately a cow gave less than a certain quantity of milk she was sold to the butcher to be killed, generally for £3 or £4 less than she cost as a calver. Now, if to this usual loss of £3 or £4 is to be added the £6 or £8 she cost more than her market value, it would be seen how impracticable was that method. The next proposal was to go to the breeder and have the cows tested there. This was all very well if the breeders were somewhere near the towns, but in his district the cowkeepers did not want the cows bred near the town on account of the smoky surroundings. It was easy to go into the country, but what would it cost a town cowkeeper to send a town practitioner into the country to test one or two cows—for a cowkeeper with any twenty cows cannot have a lot of newly calved cows all at once. He had to buy one every two or three weeks so that his milk supply might be regular. The cost would be so great as to render that method impracticable. It seemed to him there were only two methods. First, a liberal compensation to anyone who would take the thing in hand like Mr. Gair Ashton and kill all reacting. Second, and he would like to say that this was the only one which appeared to him to have any chance of success, to educate the breeders, and by a moderate compensation to them to induce them to test their cattle when young, and when the loss was only small if they reacted, then they could sell their cattle to town men, guaranteed to stand the test. As to the value or reliability of the test, town practitioners had no chance of following up their cases in his district, owing to the fact that they had only private slaughter houses, and he was perfectly in the dark as to the value of tuberculin as a test from his own post mortems. He supposed they had read the statements of Professor McFadyean as to his testing the Queen's cattle. Out of forty cases two were wrong. In one case in which a reaction had taken place there was no symptom of tuberculosis which could be discovered. In the other case the bronchial gland of the cow was moderately affected, yet she gave no reaction and she proved to be tuberculous. That seemed to him to be a serious point, and indicated that we had not yet learnt all there was to know about tuberculin.

Mr. S. Locke remarked that he had listened with much pleasure to Dr. Delépine's most interesting and instructive paper. Such papers would be of great benefit to the Government when they took into consideration the question of compensation. The reason, he thought, why Mr. Long did not take the matter fully in hand was because he was not quite prepared as to the amount of loss that would arise on the cattle which had to be destroyed. There were led to believe that 50 to 75 per cent. would be the loss, but veterinarians had found from experience, at least he had, that the salvage was a very large one. Mr. Ashton's cases, quoted by Dr. Delepine, were cattle in full milk and had taken the price of such. Of course, they were not worth so much for meat as those which had finished milking and were fairly fat for the butcher, but in some cases he had obtained the full value for cows, even from the milking stock, and from those which were not very fat. In connection with the testing of the Queen's cattle by Professor MacFadyean, he noticed that one animal did not give any indication of tuberculosis although it was afterwards found to be a case, and that the temperature was taken after ten hours. If it had been taken some six hours afterwards he believed that there would have been a result, as he had seen the temperature rise after the 15th, 16th and 18th hour. Along with Mr. King he examined a lot of Irish cattle with the result that only reacted, and post mortem proved them to be cases of tuberculosis. The others were perfectly free from the disease, and did not react. He was afraid that in towns where cows were kept a a long time there was a good deal of tuberculosis. He had in mind a lot of 40 and another lot of 10 which were tested and every case reacted. The animals were not killed. The 40 lot was a very valuable lot of shorthorns, and the owner was perfectly astounded at the result, but he intends having them tested again in six months to see if there is any alteration. Concluding, Mr. Locke said he had no doubt whatever that tuberculin was as safe a test as it was possible to get, in fact there was nothing safer. Mistakes were bound to be made at times. Even in the cases of Professor MacFadyean where there was reaction and no tuberculous deposits found there would be some exciting cause, which, if fully examined, would account for the temperature rising.

Mr. Laithwood considered the heartiest thanks of the Society were due to Dr. Delépine for his splendid paper. As to the tuberculin test, his experience of which was considerable, the errors he had come across were very few indeed. In only two cases out of some 1400 tested had he been able to find that tuberculous condition had resulted, although no reaction had taken place at the time of injection. Two other errors were discovered on post-mortem in which the animals did not react, but no tuberculous lesions could be detected by the naked eye. At the same time he would not go so far as to say that because no lesions were apparent, none were present, in fact it would be impossible for anyone to say that. He had no hesitation in testifying to the reliability of tuberculin. It was a most valuable agent and of the greatest possible service to farmers if they could be persuaded to make use of it. It would pay them to have their cattle tested, and to weed out, as opportunity occurred, those which reacted. He did not approve of wholesale slaughter, and if the farmers did as he suggested very little loss would result, at any rate nothing like the loss experienced by the County Council at Worleston, or in those mentioned by by Dr. Delépine at Ford Bank. He had always strongly advocated that some compensation should be given by Government to assist in eradicating the disease. The public who were, and had a right to be, protected ought to pay their portion for being protected, and if it was right to grant compensation in the case of pleuro-pneumonia, in which there was no danger to human life, surely there was a greater reason to grant compensation in tuberculosis, a

disease which caused more suffering than all the other diseases in the kingdom. The amount required for compensation had been considerably overestimated, seeing that only 5 to 7 per cent. of carcases which were tuberculous were not fit for human food. In any case the compensation would be for a year only, or two at the outside, whereas the compensation for other contagious diseases, such as swine fever, had been going on for a number of years. With regard to the loss on stocks which had been tested, the fact of the enhanced value of those animals that did not react appeared to have been somewhat lost sight of in the consideration of that question. Tuberculosis of the udder had been mentioned, and he had a peculiar experience in an animal at Worleston—the only one in which Dr. Delépine was unable to find tubercular bacilli—it reacted considerably, but on examination of the udder no enlargement of any portion of it could be detected although Dr. Delépine said it was giving dangerous and tuberculous milk. While not having had any connection with town dairies he quite appreciated Mr. Woods' difficulties with regard to them, for he (Mr. Laithwood) had association with country dairies which had been extremely tuberculous. He knew of four in which every animal was tuberculous, and quite recently he tested a stock of 45, and only 8 out of that number passed, although each animal was as healthy-looking as it was possible to be. He suggested to Mr. Woods the entire removal of the cows and cowkeepers from the town to the country, and the testing of the young stock as early as possible, then anyone buying stock, no matter from where, would get sound animals.

Mr. J. B. WOLSTENHOLME, after warmly thanking Dr. Delépine for his instructive paper, emphasized the necessity for the abolition of private slaughter houses and the substitution of public abattoirs throughout the kingdom, combined with an efficient meat inspection by competent and authorised veterinary inspectors. Until this want was supplied he did not see how it was possible to successfully combat the disease which produced such dire results. Another point of importance was the value of certain certificates of soundness and *freedom from tuberculosis* in cattle. Manchester and other towns had recognised the need for the production of milk declared to be from cows absolutely without the taint of tuberculosis. This had been insisted on as a condition by sundry of our hospitals and infirmaries, which would only take milk from those vendors whose cows were certified not to have reacted when tested with tuberculin. This had had its effect on private individuals who were anxious to have the same protection, and thus it was that milk carts bearing the inscription *Non-tuberculous milk supplied* were to be seen going through the city. There was a danger, however, in the granting of certificates, for unscrupulous persons might give them without proper examination, and it seemed to him that if certificates were to be of any value, before long only those from certain recognised persons would have to be accepted by the community—in other words there would have to be an organisation of veterinary inspectors empowered to give certificates having a definite value, and that those from persons other than specially appointed individuals would have to be refused. If steps were not taken to prevent the improper granting of certificates and the improper use of genuine certificates, he thought that the reputation of the profession would be very much discounted.

Mr. JOHN DUNSTAN (visitor from Cornwall) gave his experience of the tuberculin test, which went to prove the reliability of tuberculin. With Mr. Wolstenholme, he was of opinion that the use of tuberculin should be confined to official veterinary surgeons, as there was no doubt that its use was open to very great abuse.

Mr. J. H. CARTER, in proposing a very hearty vote of thanks to Dr. Delépine for his excellent paper, confessed that his small experience of tuberculin had not been of the very best. He thought it was imperative that the Government should do something in the way of compensation. In view of the great infantile mortality, due to this disease, it demanded that liberal compensation should be granted.

The PRESIDENT seconded the proposition, adding that there was one thing in the aspect of the whole question which, in his opinion, appeared to have been lost sight of, that was, the consumer who, unfortunately, seemed to be the least interested. It was a question whether the consumer could be persuaded to pay one farthing more for the milk, although it was guaranteed non-tuberculous. It was quite evident that the public would have to be educated on the subject, and in Huddersfield the Corporation had adopted a persuasive method, by means of which the cowkeepers within a certain area had their cattle tested free of charge by veterinary surgeons appointed by the Corporation. The results, so far as the testing was concerned, were about 40 per cent. reactions, but it was remarkable the small number of udder reactions. He believed that if the Government stepped in and for a couple of years put into operation the tuberculin test as a compulsory method, compensating the owners of such animals which had to be destroyed, within three years at least there would be a comparatively healthy stock of cattle in the kingdom. Another thing that occurred to him was whether the veterinary profession was altogether reliable, as he had heard of certain veterinary surgeons who had fraudulently used tuberculin. It was necessary that the use of tuberculin should be confined to official veterinary surgeons.

Dr. DELÉPINE, in reply, tendered his heartiest thanks for their very kind reception. It struck him that the question of official veterinary service, and isolation sheds erected by the Corporations in districts, and of temporary compensation for cattle slaughtered, appeared to be the best means of dealing with the disease.

SOUTHERN COUNTIES V.M.A.

Sir,

The members of the Association present at the practical demonstrations given by Prof. Hobday on the 20th ult., will be pleased to hear that all the patients have done well; the rig especially so. Never at any time was there any swelling worth mentioning, and he was never off feed. On the contrary he kept in the best of health. The night of the operation he tried to jump a mare.—Yours faithfully,

JOHN B. TUTT. F.R.C.V.S.

EXTRACTS AND NOTES.

DISEASES OF ANIMALS ACTS.

The Departmental Committee appointed by the Board of Agriculture to inquire into the working of the Diseases of Animals Acts in so far as they relate to glanders, and to consider whether any more effective measures can with advantage be taken to prevent the spread of that disease, have presented a report containing the following recommendations:—

1. That the Board of Agriculture should exercise a more extended supervision of the working of the glanders or farcy order.

2. That the glanders or farcy order should be amended to permit of notification of disease being made either to a constable or a veterinary inspector.

3. That where practicable the local veterinary inspector should not engage in private practice.

4. That it should be made obligatory for veterinary

surgeons to notify cases of glanders of which they become aware.

5. That occupiers or owners of knackers' yards should notify any case of glanders found in animals taken to their yards for slaughter.

6. That horses that react to the mallein test should be considered as possible sources of infection.

7. That horses that the veterinary inspector may consider to have been exposed to contagion should be dealt with in the same manner as suspected horses, but with certain reservations.

8. That the slaughter of all animals showing "clinical" symptoms of glanders should be made compulsory.

9. That compensation for horses slaughtered solely on account of reaction to the mallein test should be on a higher scale than that for a "clinically" diseased horse, with a limit of £25. But in the event of no glanders lesions being found post-mortem the compensation should be the full value, with a limit of £50.

10. That the Board of Agriculture should conduct experiments with regard to the use and influence of mallein.—*The Times.*

Rabies in Ireland.

We understand that the order of the Board of Agriculture regulating the admission into Great Britain of dogs from Ireland has now been formulated and will be published shortly in *The Gazette*. The order follows closely upon the lines of that already in force in regard to foreign dogs—that is to say, it prohibits the landing of unlicensed dogs and imposes a quarantine of six months, unless after 90 days' detention a veterinary certificate is produced to show that the animal is in good health and may safely be removed inland.

ARMY VETERINARY DEPARTMENT.

Vet.-Major S. Duff-Gillespie left Woolwich for Salisbury Plain, 29th ult.

Vet.-Major W. A. Crow left Exeter for Salisbury Plain on same date.

Vet.-Lieut. F. Eassie left Camp Glen Imaal, 25th ult, to return to Newbridge.

Vet.-Lieut. G. Conder left Athlone, 18th ult., for duty with 3rd Dragoon Guards, at Dundalk.

Veterinary Department and Military Titles.

The action of the War Office in refusing the Military titles to the officers of the Army Veterinary Department which they have granted to the officers of the Royal Army Medical Corps is already bearing fruit. The War Office Authorities may possibly be perfectly right in the view they take on this matter, but the veterinary surgeons of the Army mean, if possible, to gain their end by the same means which procured the grant of the Military titles to the medical officers, viz., boycotting. If the plan succeeds, the Authorities will find that the number of applications for admission to the entrance examination for the Army Veterinary Department will become fewer and fewer, until, as in the case of the Medical Department, it becomes absolutely necessary to give way to the demand for Military titles if the work of the Department is to be carried on with any approach to efficiency. What is practically the same thing as "picketing" during a trade strike is already being resorted to, and the few who do present themselves for examination will find that they have thereby covered themselves with odium from the point of view of their future brother officers already in the Service. It is even said that steps will be taken by the examiners to reject candidates in order that they may be able to say that none but incompetent candidates present themselves owing to the unpopularity of the Service arising out of Lord Landsdowne's refusal to grant the desired Military titles.—*Morning Post.*

The Late Lieut. E. Wilkinson, A.V.D.

Lieut. W. J. Tatam writes: I regret to say that Vet.-Lieut. E. Wilkinson, A.V.D., died in the General Hospital, Madras, from abscess in the liver. He was a very great friend of mine, and we were students together in the New Veterinary College, Edinburgh, and joined the service within three months of each other, the date of his diploma is, I think, 1887 or 1888, I am not certain which. He joined the service in 1890, and most of his service was at first in South Africa, when he exchanged with his brother who was then serving in India, the latter died in South Africa about three years ago and his brother came to this Presidency. His first tour of foreign service terminated in 1897, after which he went home and served there until last August when he came out again for another tour, having exchanged. He had been ailing here for a time and was ordered to Madras on March 17th for a change, but the poor fellow went to hospital a very few days after arriving there and never left it again, dying yesterday, 20th inst. He was a most kind and genial companion, a good officer, and a true sportsman, and his loss to us will be very deeply felt. His age was 32. His funeral was with full military honours.

I am very sorry the poor fellow is dead, and it came as a great shock as he was ordered home on sick leave from Madras soon after his arrival there, but was not well enough to undertake the voyage. He was a very great friend of mine and used to live here with me.

Bangalore, June 21st.

OBITUARY.

William Hastings Farrow, M.R.C.V.S.
Graduated, Lond., Feb., 1852.

Mr. Henry Gray writes, under date Thursday, August 3rd: "I am sorry to inform you that my uncle, Mr. William Hastings Farrow, M.R.C.V.S., of 30 Lower Phillimore Place, Kensington, W., died at 8 o'clock this morning consequent upon a paralytic seizure. He attained his 67th birthday on July 15th last, and was the eldest son of the late Mr. William Farrow, M.R.C.V.S He retired 20 years ago after a successful career, leaving his business to his son the late Mr. William Hastings Farrow, who died five years ago.

CORRESPONDENCE

ASSISTANTS AND "LOCUMS."

Sir,

In my humble opinion there are several other causes than "poor wages and rough work" why good men will not go as assistants, and now that you have opened up the subject perhaps it may not be out of place to mention some of them.

In too many instances it is the kind of treatment a young man receives at the hands of his principal that makes his life unbearable. I will give an illustration. Suppose the assistant is called to a case of Lameness, let it be a hind leg or a fore, where nothing definite is to be found and the assistant does his best to locate the mischief, if it is a fore and the animal under five the young man naturally suggests an incipient splint, and so informs the inquisitive owner. A few days later the principal visits this animal and unhesitatingly informs the owner it is a case of navicular congestion or carpitis, and orders radical changes in the treatment, although he has no definite reasons for coming to such conclusion,

and in nineteen similar cases out of twenty if another practioner with the same unlimited experience and assumed superior knowledge as the principal in this case was to see the patient, he would differ in opinion as to the seat of lameness ; the consequence is that the next time the poor assistant visits this animal the owner looks daggers at him and says, how came you to say the horse was going to throw out a splint when your master says it is an undoubted case of foot or knee lameness. Now had the principal been honest and admitted it was a case in which differences of opinion would naturally arise, and that it was a masked or doubtful case, and that although there was nothing to show for it he thought it a case of foot or knee lameness, but could not give any special reasons for coming to such a conclusion, the poor assistant would have been saved much humiliation and not made to look such a fool in the eyes of the public.

In too many instances an assistant is only like a machine, he is not allowed to think for himself or have an opinion of his own, and when sent out to a case is expected to carry out a certain infallible course of treatment known only to his employer, and should he vary from this particular line and the animal die he gets himself disliked and hears grave hints of his incapabilities ; and yet if that case and the treatment ordered were described to another experienced practitioner the treatment would as often as not be described by him as useless or something worse. In my experience the older a V.S. gets the more conceited he becomes in his opinion of a case, and anyone who does not agree with him knows nothing or is not practical, although it is a generally admitted fact that many old practitioners have fads in respect to lameness and courses of treatment.

In my opinion no young man should go in for a V.S. unless he possesses abut £1500. His diploma will cost him four years hard study and about £500 ; with the other cash he can buy a practice or partnership and settle comfortably. Should he only have sufficient capital to enable him to qualify he had far better invest it in some other less worrying walk in life, as his remuneration when qualified as an assistant will for some years be little if any better than the wages of a coachman, whose position, though inferior, is vastly preferable in respect to hours, meal times, rest, and regularity in living generally.—Yours truly,

ASSISTANT.

Sir,

For some time past I have at intervals advertised in veterinary papers for employment, receiving numerous answers from all parts of the country. One thing has struck me in the replies and that is the extremely small remuneration offered in many cases, three of which I quote from :

(1). "Your terms (30s. per week) are too high. I can offer you a permanency at £60 per year."

(2). "The salary you name (30s. per week) is more than I have hitherto given and as when I am at home it is by no means a hard berth I think I shall be able to obtain the assistance I require on easier terms than than those you mention."

(3). "I require a "locum tenens" for nine days. My terms for that period are 30s. and 3rd class train fares both ways."

Now, Mr. Editor, what I desire to know is whether young veterinary surgeons accept such terms as these, and if this represents the average remuneration offered by owners of practices, what inducement is there for men to go to the expense of obtaining a diploma in this profession? In nearly every other trade, business, or profession larger salaries than those I quote above are obtainable.

It appears to me that the men who own practices are the culprits, and that no one values a young qualified man's services at so low an estimate as the older practitioner whose cry has been higher education, four-years'-course, and raise the standard of examination, thus attempting to protect their own interests by staying the supply of new members. After a man has satisfied these demands, he is offered a mere pittance by the owners of practices who seem to be able to get their surplus work done at any price they like to offer.

I suggest that all qualified assistants should combine and fix a minimum weekly salary and bind themselves to accept nothing less. This could easily be done if some person of influence could be interested in a movement of this sort, which I believe would ultimately result in a great benefit to the whole profession and raise its social status, a thing we hear so much of but fail to realize at £60 per annum. The more wealthy a man is and the larger his practice, the less he offers an assistant appears to be the general rule, but these men must employ assistants and they can be made to pay a proper salary by the means I suggest.

Most of the replies I received have been courteous, although some were rather illiterate, but one I quote which I consider *infra dig* between *professional men* save the mark ; this is written on paper headed with name, address, and telephonic number, and runs thus : "Will this person communicate with me," and is unsigned

If this subject is of sufficient interest to others I hope they will be allowed to record their experiences and will do so thoroughly. Apologising for trespassing to such an extent on your space.—Yours faithfully,

M.R.C.V.S.

MEASUREMENT OF POLO PONIES.

Sir,

In last week's issue of *The Record* "Puzzled" asks where he can get a standard specially for measuring "polo ponies."

I have pleasure in informing him that I saw one in use at the Highland and Agricultural Society's show held in Edinburgh very lately, that in my opinion is by far the most perfect that has yet been produced. By means of vertical and horizontal spirit levels and other ingenious appliances, and given the essentials of a ground surface level with that on which the horse or pony stands, with a knowledge of the point at the withers on which the cross-bar should rest, the correct height to a hair's breadth is readily determined. This standard has been lately patented by Professor W. O. Williams, New Veterinary College, Edinburgh. A standard such as this has long been a crying want, and my memory recalls many disagreements and heartburnings met with while racing in India with ponies and Galloways that resulted from the use of imperfect standards, and perhaps a little trickery combined. A genuine 13-3 or 14 hands Galloway very rarely has a chance against a horse over 14 hands, even if the excess be only half an inch to an inch, and I have seen to my cost a quarter of a century ago, a little racehorse 14-1 in height, farm all the Galloway races throughout the country, which could never have happened had this patent standard been then in vogue. Since that time the game of polo has vastly extended in this country, necessitating a more perfect form of standard to determine the height of polo ponies. For racing purposes in India and China this measuring standard would be invaluable.

While so strongly recommending it, I beg, in conclusion, to state that I have not the slightest interest in doing so other than affording the help "Puzzled" calls for in your columns.—Yours faithfully,

PETER MOIR.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED :—Major J. A. Nunn, Lieut. J. Loughlin ; Messrs. P. Moir, S. Bailey, A. T. Hutton, T. J. Batty. "Assistant."

Cape Agricultural Journal, Whitehaven News, The Newcastle Daily Journal, South Coast Quarterly.